National Advisory Council for Environmental Policy and Technology

November 19, 2007

Administrator Stephen L. Johnson
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

***Re*: Expanding EPA's Stewardship Role in Biofuel Development**

Dear Administrator Johnson:

NACEPT members are appreciative for the serious consideration that you and the Agency are giving to the two advice letters we have already provided on the development of renewable fuels. We want to express our appreciation for the rapid evolution of the biofuels program within EPA, particularly the excellent work EPA is doing in providing leadership on environmental issues in the interagency Biomass R&D Board, in developing the Renewable Fuel Standard, in adopting and promoting the biofuels supply chain as a framework for analysis and planning, and in working to develop a coordinated, participatory way for the entire Agency to engage in this burgeoning national effort. Your letter of September 26 to us is a strong and positive one, and we wish you much success in all these efforts.

In today's letter, we wish to place particular emphasis on the large scale and almost breakneck pace of the national effort to develop a biofuels industry able to meet the expectations of both the executive and legislative branches and respond to the recent decision of the Supreme Court regarding greenhouse gases. An effort of this magnitude is bound to generate a polarization between what John Gartner characterized as "uncritical lovers" and "unloving critics." A key challenge for EPA in this national effort is to rise above this polarization and help all parties understand that the impacts of this unprecedented initiative will depend on the quality of the effort to ensure that the biofuels industry is developed in a *sustainable* manner.

NACEPT members believe that the nation has the capacity to create a biofuel system that can help meet energy needs over the generations ahead without degrading the natural resources of soil and water required for continuing productivity and without unacceptable impacts on the environment, human health, and the well-being of any parts of our population. But this outcome will not be automatic, or easy, or inexpensive. It will require a dedicated, long-term effort in which "doing it sustainably" achieves equal priority to meeting production goals. The Agency's

shorter-term rulemaking efforts will take a first step towards sustainability by characterizing the life cycle impacts of the industry, but achieving a fuller understanding of the requirements for building a truly sustainable biofuels industry will be a longer-term effort. EPA will need to be prepared to take further actions over time in the light of continued learning.

The stakes are high because the costs of "doing it unsustainably" could be very large. A generation from now, the rapid expansion of biomass and biofuel production may look unwise, or worse, unethical, if it is done in a way that leads to depleted aquifers and polluted water supplies, reduced soil quality and land productivity, high food prices and more undernourished people, and a boom-and-bust cycle of unsustainable growth that discourages further investment.

The current effort to transition our energy economy from hydrocarbons to carbohydrates will deliver its full promise only if we remain mindful of the essential truth that renewability is not synonymous with sustainability. How we answer the questions of what, where, and how biomass is grown, processed, and delivered will determine whether the effort meets its potential of becoming an environmentally and economically sustainable solution.

NACEPT members believe that providing the leadership needed to steer biomass and biofuel development on a sustainable path will require EPA to go well beyond its strictly mandated regulatory roles and develop a wide range of stewardship initiatives that encourage all parties involved with the biofuels industry to take active responsibility for improving environmental quality and achieving sustainable results. Under your leadership, the Agency is increasingly incorporating stewardship strategies into its programs and activities. The effort you have initiated to create an integrated, collaborative, multimedia Biofuels Strategy provides an opportunity for EPA to utilize virtually the entire set of stewardship strategies at its disposal, including partnerships, research, technology development assistance, information provision, and collaborative problem-solving.

Below are several examples of the kinds of stewardship activities that EPA could undertake or do on a larger scale. They are presented in logical categories (e.g., research, commercialization assistance, public information) rather than in any priority order. Please share these examples and recommendations with the work group you have created to develop an Agency-wide Biofuels Strategy.

Accelerate Research on Impacts of Expanding Biomass and Biofuels Production and the Sustainability of the Industry

As you know, EPA already has identified several important areas for research on the impacts of expanded biomass and biofuel production on natural resources and human health. To accurately assess these impacts, it will be necessary to establish baseline data in key areas such as water availability, water quality, soil quality, land use changes, and the implications of changing land

uses for the provision of ecological services. Building upon the baseline data, EPA and other agencies will then be able to develop a set of *sustainability indicators* to identify the extent that the conditions being monitored are changing. The regular data collection needed to produce useful indicators will be a major step forward in assessing environmental conditions. The challenge of developing sustainability indicators for biomass and biofuel production can be a spur to making improvements in the nation's system for gathering environmental data. The resulting information will be useful for a variety of other purposes.

Recommended EPA Actions

- Further elevate research on the impacts of biomass and biofuels production and the sustainability of the industry as a major priority within the Office of Research and Development, and encourage greater coordination between ORD and relevant research efforts across the Agency.

- Develop an even more robust in-house capacity for carrying out sophisticated life cycle analyses (LCA) and building national and regional decision support tools, such as the Office of Research and Development's and Region 7's Future Mid-western Landscape Study on the impact of biofuels on ecosystem services.

- Help catalyze intergovernmental research efforts to improve baseline data needed for assessing impacts of biofuels and other energy technologies. For example, a September 2007 report from the President's Office of Science and Technology Policy (OSTP) on *A Strategy for U.S. Science and Technology Policy to Support Water Availability and Quality in the United States* concludes that "simply stated, quantitative knowledge of U.S. water supply is currently inadequate." The report proposes a comprehensive science and technology research strategy to address the water challenges facing the nation. Participation in an effort of this nature would give EPA a basis for assessing many other environmental impacts and for gauging progress toward meeting several goals in the Agency's strategic plan.

- Building from a better understanding of the baseline state of the environment, work with other agencies to develop a comprehensive set of sustainability indicators.

- Accelerate efforts within the Office of Prevention, Pesticides, and Toxic Substances to evaluate and register bio-pesticides and bio-based fertilizers to augment or replace traditional chemical pesticides and petrochemical-based fertilizers. Work to identify the best application approaches for mitigating the serious impacts that the rapid expansion of biofuel production could have on water quality.

- Collaborate on research to clarify best methods for maintaining and building soil and mitigating nutrient runoff in areas where intensive biomass production is taking place. Use existing alliances between Regional programs, the Office of Research and Development, Office of Water, and USDA, such as the National Water Program, Gulf Hypoxia Task Force, Chesapeake Bay Program Memorandum of Understanding, and EPA/USDA Animal Feeding Operations Environmental Research and Technology Transfer Committee.

Provide More Public Information on Biomass and Biofuel Impacts and Sustainability

EPA can play an essential role by providing the public, public officials, and the business community with objective analysis and accurate, understandable information. To be effective in this role, the Agency needs to maintain and strengthen its reputation for scientific rigor, honesty, and transparency.

Recommended EPA Actions

- Clearly present the facts if there are aspects of the federal government's initiative to accelerate the production of renewable fuels that research shows are producing unsustainable impacts.

- Work collaboratively with the investment community. Financial markets can function well only when investors have the information they need to assess risks and make judgments about who will most productively use their capital. No organization is better qualified than EPA to provide information that investors would find highly useful on the practices and processes that appear most problematic or beneficial from the perspective of impacts on natural resources, environmental quality, and human health.

- Work with other groups, like the 25 x 25 Initiative, that are forming sustainability and stewardship working groups or task forces to promote the environmental integrity of the biomass industry. (The "25 x 25" effort is a partnership initiated in the agricultural and forestry sectors to forge consensus on providing 25 percent of the total energy consumed in the U.S. from renewable sources by 2025.) The efforts of different groups are likely to overlap considerably, such as work to define the basic principles of sustainability and the metrics to measure it. By developing a relationship with these groups and their activities, EPA can learn from them as well as help them to influence the industry's development.

Help Facilitate the Commercialization of Biofuel-Related Technologies

NACEPT's Subcommittee on Environmental Technology has recently produced two reports that review the wide range of programs and other means available to EPA for facilitating promising technologies through a development continuum toward commercialization and use. These tools need to be used to accelerate the development of promising biofuel-related technologies.

Recommended EPA Actions

- Utilize the full range of tools at EPA's disposal for facilitating promising biofuel technologies, including:

  - ✓ State grants in all EPA programs (e.g., Air, Water, Waste, and Pesticides), for projects related to all the Agency's renewable fuel goals;
  - ✓ Tribal grant programs, including Performance Partnership Grants and Direct Implementation Tribal Cooperative Agreements;
  - ✓ Office of Research and Development *Small Business Innovation Research (SBIR)* grants to small businesses for bench and pilot-scale investigations;
  - ✓ Research grants to "on the edge" investigations that are risky but would have very large payoffs if successful, through the Office of Research and Development's *Science to Achieve Results (STAR)* program and the *National Environmental Technology Competition (NETC)*;
  - ✓ Funding of larger demonstrations, jointly with other agencies, through such things as State program grants, the Environmental Technology Council's *Regional Environmental Technology Council (RETAN)*, and the *Collaborative Science and Technology Network for Sustainability, (CNS)*;
  - ✓ Using the *Regional Environmental Technology Advocacy Network (RETAN)* under EPA's Environmental Technology Council to identify, share, and implement opportunities to use technologies that will ensure sustainable biofuels feedstock, production, distribution, and use;
  - ✓ Using the Office of Research and Development's *Environmental Technology Verification Program (ETV)* to verify the environmental performance of commercial-ready technologies to assess their efficacy and cost so they will be seriously considered in the marketplace, and help facilitate permitting of new environmentally beneficial innovative technologies;
  - ✓ Replicating models such as EPA New England's *Center for Environmental Industry and Technology (CEIT)* nationally or within other regions to encourage collaborative technology development and use;
  - ✓ Program, Regional and multi-state permit and compliance assistance for new environmentally beneficial technologies; and

- ✓ Readily available, reliable information on new, cost-effective technologies through programs such as EPA's Environmental Technologies Opportunity Portal, the Environmental Technology Council's *Regional Environmental Technology Advocacy Network (RETAN)*, EPA New England's *Center for Environmental Industry and Technology*, and Regions 6 and 7's *Blue Skies Collaborative*.

- Focus many of these stewardship activities on the development of crop-to-fuel conversion technologies, waste-to-energy technologies, and the comparatively neglected area of developing new types of biofuels with superior cost-performance and environmental characteristics.

- Consult with the oil industry to insure that EPA's biofuel-related efforts are done with an understanding of their potential impacts on the existing industry. Rapid expansion of the biofuels market depends on cooperation between the oil and biofuel industries to minimize conflicts and uncertainties.

- Consolidate NEPA reviews and other government information on experience in constructing cellulosic ethanol plants and other biorefineries and make it available to help industry avoid problems and speed the replication of successes. While this information will all be site-specific, generic aspects may apply that could reduce the administrative burden. EPA's regions could use this information to support both DOE and USDA in their efforts to assist industry.

- Explore the technical and environmental feasibility of allowing use of higher ethanol blends, such as E-30 and E-50, working collaboratively with the oil, auto, and ethanol industries. EPA, along with industry and other federal agencies, will need to assure the technical and environmental feasibility of using higher blends. If it proves possible to permit drivers of non-flexible fuel vehicles to use higher blends with low-cost, EPA-approved modifications to engines, and with appropriate modifications to assure the safety of distribution infrastructures and dispensing technologies, the market for ethanol could expand rapidly.

Provide Economic and Scenario Analyses to Inform Public and Private Sector Decision Making

Assuring that biofuel development follows a sustainable path requires attention to economic sustainability as well as environmental sustainability. Therefore, EPA needs to help engage the federal family in looking at economic aspects of sustainability. Whether or not it may sometimes be appropriate for EPA to weigh in on subsidies and other policy issues, NACEPT members

believe it is clearly appropriate for the Agency's economics modelers (such as the National Center for Environmental Economics, the Office of Research and Development's Regional MARKAL modelers, and economic analyses within the Office of Air and Radiation, Office of Water, and the Office of Solid Waste) to do cost-benefit analyses to inform decision-making.

Recommended EPA Actions

- Hold internal discussions among the Agency's leadership in the near future about the kind of cost-benefit, economic-environmental analyses that would be appropriate and useful for EPA to undertake in this area, optimizing the use of expertise within program offices, the Office of Research and Development, and the National Center for Environmental Economics.

- We recommend using decision support tools, such as the Office of Research and Development's Regional MARKAL model, to forecast the economic and environmental impacts of alternative biofuel development paths using *specific regional inputs*. For example, as part of its responsibility for water quality in the Midwest, EPA could help develop estimates of the potential consequences of different levels of increased corn planting for biofuels. Areas for analysis and forecasting could include water availability and quality, soil quality and erosion, greenhouse gas emissions and air impacts, food prices, potential environmental justice issues, land use changes, and the impacts of these changes on the provision of ecosystem services.

- We recommended conducting cost-benefit analyses of alternative cellulosic conversion plant configurations (e.g., centralized vs. distributed processing). Conversion plant location, distribution of these plants in rural America, and size will significantly affect a wide range of logistic and environmental factors, including transportation volumes/distances, volumes of spatial water extraction/use, economics, energy and carbon balance, and types of feedstock that may be produced.

Provide the Workforce, Resources, and Planning to Do the Job Right

The accelerating pace of biomass and biofuel development is forcing EPA to take on added responsibilities (such as promulgating the Renewable Fuel Standard and developing the Alternative Fuel Standard rulemaking), use every tool at its disposal, and do all this quickly.

Recommended EPA Actions

- Initiate discussions with the Office of the Chief Financial Officer (OCFO) about the implications of the Agency's biofuels initiative for EPA strategic planning. At the least, biofuels issues are sufficiently important to rise to the level of strategic targets to be included in the next revision of the Strategic Plan. Beyond that, the integrated, collaborative, multi-media Biofuels Strategy being developed within the Agency under your leadership may serve as a model for how EPA can plan and organize for dealing with other environmental issues and areas of energy development, as recommended in our first advice letter.

- Carefully consider the workload being placed on key EPA staff for developing a proposed rule on Alternative Fuel Standards, and supply additional staff where it is most essential to provide comprehensive analyses and data to support this rulemaking.

- Distribute the workload more widely, relying on air, water, waste, and pesticides experts, and gaining access to baseline environmental data and models throughout EPA to help analyze the impact of biofuels production.

- Encourage voluntary programs throughout EPA to identify ways in which they can assist the development of an environmentally sound biofuels industry while protecting the health and well-being of all citizens of our nation.

- Keep encouraging the kind of internal dialogue that is beginning as a result of your recent request to develop an EPA-wide Biofuels Strategy. This cross-agency, multi-media dialogue is needed for developing an effective strategy that integrates across programs and utilizes the full range of tools and expertise available to the Agency. Integrated, participatory, sustainability-focused, Agency-wide planning is the key to both maximizing the Agency's resources and reducing risks to the environment.

Administrator Johnson, your National Advisory Council on Environmental Policy and Technology believes that assisting the biofuels industry to develop in a sustainable manner will be a stringent test of EPA's leadership within the federal family, within the environmental community, and within the energy industry. Shepherding the initiatives that you already have begun in this area will be daunting; facilitating and focusing the efforts of the several federal departments and agencies will be difficult; maintaining EPA's reputation for integrity while managing expectations will need to be artful and open; and helping the rapidly growing biofuels industry and the mature petroleum industry to understand and appreciate their necessary interdependence will be extremely important in making the entire undertaking feasible. As always, we stand ready to do whatever we can to help.

Sincerely,

John L. Howard, Jr.
Chair

cc: Frank Stewart, Working Group Co-Chair
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